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09/801,201	03/07/2001	John L. Lautzenhiser	212-02US:0103	4024
45920 7590 04/13/2009 WENDELL E. MILLER, PATENT AGENT 1506 TIPPECANOE DRIVE, D-1 WARSAW, IN 46580				
EXAMINER				
NGUYEN, NAM V				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

09/801,201

Applicant(s)

LAUTZENHISER ET AL.

Examiner

Nam V. Nguyen

Art Unit

2612

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 January 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5, 9-17, 19, 31-52, 62, 63 and 74-95 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 9-16, 31-42, 47, 50-52, 62, 63, 74-95 is/are rejected.
- 7) ☒ Claim(s) 17, 19, 43-46, 48 and 49 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

This communication is in response to applicant's Amendment which is filed January 2, 2009.

An amendment to the claims 11, 12, 42, 74, 76 and 79 has been entered and made of record in the application of Lautzenhiser et al. for a "rate-of-change switches and controllable apparatus" Filed March 7, 2001.

Claims 1-5, 9-17, 19, 31-52, 62-63 and 74-95 are now pending in the application.

Response to Arguments

In view of applicant's amendment to amend the claims 5, 11-12 and 75-76 to obviate the 35 U.S.C. §112 rejections, therefore, examiner has withdrawn the rejection under 35 U.S.C §112, second paragraph.

Applicant's argument to the rejected claims are insufficient to distinguish the claimed invention from the cited prior arts or overcome the rejection of said claims under 35 U.S.C § 103(a) as discussed below. Applicant's argument with respect to the pending claims Claims 1-5, 9-17, 19, 31-52, 62-63 and 74-95, filed January 2, 2009, have been fully considered but they are not persuasive for at least the following reasons.

On page 12, last paragraph, Applicant's arguments with respect to the invention in Allen et al. does not teach or suggest a tilt-sensitive transducer is not persuasive. The claims in a pending application should be given their broadest reasonable interpretation. In re Pearson, 181 USPQ 641 (CCPA 1974).

As defined by claim 1, Allen discloses a structure includes a piezoelectric transducer device acting as a sensitive orientation sensor (14) (i.e. tilt-sensitive transducer) that produces an output signal in response to a user's activity (i.e. a user input). If a single transducer sensor is used, the monitor is most sensitive to a single plane of body motion, i.e. up and down movement (column 2 lines 60 to 67; column 7 line 32 to column 8 line 11; see Figures 1A and 5A-C). A dual piezoelectric transducer arrangement is used to sense acceleration induced by a user's body movement in three orthogonal dimensions, i.e. up and down, back and forth as well as side to side. We interpret a tilt sensor to be equivalent to a one-dimensional sensor. Clearly, Allen et al. disclose a movement of up and down in a single plane sensitive transducer. In other words, using a tilt-sensitive transducer.

Furthermore, Allen et al. disclose a piezoelectric type transducer is typically most sensitive to movements in a single plane, e.g. movement forward and backward. Providing two sensors units (14 and 15) can increase the range of sensitivity of the monitor to activity in three dimensions (column 7 lines 51 to 56; see Figures 5A to 5C). Clearly, Allen et al. disclose a tilt-sensitive transducer.

On page 13, first paragraph, Applicant's arguments with respect to the invention in Allen et al. does not teach or suggest a differentiator is not persuasive. The claims in a pending

application should be given their broadest reasonable interpretation. In re Pearson, 181 USPQ 641 (CCPA 1974).

As defined by claim 1, Allen discloses feedback selection units 26 and 28 are switches controlled by a user. Selection unit 26 suitably provides an immediate feedback sensitivity selection switch. With selection unit 26, a user preferably indicates a minimum activity intensity level required to initiate feedback. A threshold acceleration sufficient to indicate activity performance by the user, is preferably preselected in the monitor design. A selected threshold acceleration level of 0.1 g (where g is 9.8 m/sec/sec, the acceleration due to gravity) has been found by the inventors to work well for distinguishing accelerations caused by performance of the physical activity from movement not related to performance of the physical activity. For example, a 0.1 g acceleration threshold level has been found to allow accurate monitoring of a range of user activities equivalent to walking at speeds of about 1-4 mph. of course, other levels of acceleration may be more suitable for monitoring forms of user activity other than walking. For example, 0.01 g would be suitable for geriatric monitors, i.e., for use with people having reduced levels of acceleration during performance of modest exercise activity. Conversely, 0.5 g has been found by the inventors to be more suitable for monitoring activities corresponding to higher acceleration activities, such as high impact aerobics (column 4 lines 42 to 67). The acceleration differentiate from velocity over time. The analog-to-digital converter unit 22 and an amplifier/detector 24 convert output signal to input to the control unit (12) differentiate from walking to reach or exceed a minimum acceleration in order to initiate feedback. Therefore, the analog-to-digital converter unit 22 and an amplifier detector 24 function as a differentiator to receive said output signal from the sensors (14 and 15).

With respect to the claims 4, 9, 15, 31, 50, 81, 85 and 89, for the same reason as above, Allen et al. disclose a tilt-sensitive transducer and the analog-to-digital converter unit 22 and an amplifier detector 24 function as a differentiator to receive said output signal from the sensors (14 and 15). Furthermore, Allen et al. disclose a control unit (12) (i.e. means), connected to said amplifier/detector (24) connected to an analog/digital converter (22) for performing an audible feedback (i.e. a first switching function) (column 4 lines 49 to 67; column 6 lines 22 to 66; see Figures 1 to 5).

Applicant's arguments with respect to claims 76-80 and 36-49, filed January 2, 2008 have been fully considered but are moot in view of the new ground(s) of rejection.

With respect to the claims 63 and dependent claims 13-14, 32-33, 52, 74-75 and 92-94, for the same reason as above, Allen et al. disclose a tilt-sensitive transducer and the analog-to-digital converter unit 22 and an amplifier detector 24 function as a differentiator to receive said output signal from the sensors (14 and 15). Furthermore, Allen et al. disclose performing said first switching function when said output signal is increasing; performing a second switching function when said output signal is decreasing; and producing a logic output as a function of both of said switching functions (column 3 lines 57 to column 4 line 14; column 6 line 58 to column 7 line 5; see Figures 2-3). Allen et al. disclose a piezoelectric type transducer is typically most sensitive to movements in a single plane, e.g. movement forward and backward. Providing two sensors units (14 and 15) can increase the range of sensitivity of the monitor to activity in three

dimensions (column 7 lines 51 to 56; see Figures 5A to 5C). Clearly, Allen et al. disclose a tilt-sensitive transducer that produces increasing and decreasing output signal proportional to user actuation in first and second directions.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1-5, 9-16, 31-35, 50-52, 62-63, 74 and 81-95 are rejected under 35 U.S.C. 102(b) as being anticipated by Allen et al. (US# 5,749,372).

Referring to claims 1 and 62, Allen et al. disclose an apparatus for accurate and convenient feedback to a user concerning activity level performance as recited in claim 1. See Figures 1 to 5 and respective portions of the apparatus and method.

Allen et al. disclose an activity monitor (10) (i.e. a switch) comprises:

a piezoelectric transducer device acting as a sensitive orientation sensor (14) (i.e. tilt-sensitive transducer) that produces an output signal in response to a user's activity (i.e. a user input) (column 2 lines 60 to 67; column 7 line 32 to column 8 line 11; see Figures 1A and 5A-C);

an amplifier/detector (24) connected to an analog/digital converter (22) (i.e. a differentiator) adapted to receive to said output signal from the sensor unit (14) (column 4 lines 15 to 23; see Figure 1A); and

a control unit (12) (i.e. means), connected to said amplifier/detector (24) connected to an analog/digital converter (22) for performing an audible feedback (i.e. a first switching function) (column 4 lines 49 to 67; column 6 lines 22 to 66; see Figures 1 to 5).

Referring to Claims 2-3, Allen et al. disclose the switch as claimed in Claim 1, in which said sensitive orientation sensor (14) (i.e. said tilt-sensitive transducer) comprises a transducer that produces an output signal proportional to said input (column 2 lines 60 to 67; column 7 line 43 to column 8 line 11; see Figures 5A-C);

Referring to claims 4, 9, 15-16, 31, 50-51, 81, 85 and 89, Allen et al. disclose a method and an activity monitor (10) (i.e. a switch) comprises:

a piezoelectric transducer device acting as a sensitive orientation sensor (i.e. tilt-sensitive transducer) that produces an output signal in response to a user's activity (i.e. a user input) (column 2 lines 60 to 67; column 7 line 43 to column 8 line 11; see Figures 1A and 5A-C);

an amplifier/detector (35) connected to an analog/digital converter (22) (i.e. a first differentiator) adapted to receive to said output signal from the sensor unit (14) (column 4 lines 15 to 23; see Figure 1A);

an amplifier/detector (36) connected to an analog/digital converter (22) (i.e. a second differentiator) adapted to receive to said output signal from the sensor unit (15) (column 4 lines 15 to 23; see Figure 1B); and

a control unit (12) (i.e. means), connected to said amplifier/detector (24) connected to an analog/digital converter (22) for performing an audible feedback (i.e. a first switching function) based on sense acceleration in direction parallel to either longitudinal axis or orthogonally oriented longitudinal axis (i.e. rate-of-change) (column 4 lines 42 to 67; column 7 lines 43 to 56; column 8 line 60 to column 9 line 8; see Figures 1 to 5).

Referring to Claim 5, Allen et al. disclose the switch as claimed in Claim 4, which further comprises means, connected to said first differentiator, for performing a video output signal on visual display counter units (18 and 19) (i.e. a second switching function) (column 4 lines 15 to 23; column 6 lines 58 to 66; see Figure 1A).

Referring to Claims 10, 82 and 86, Allen et al. disclose the switch as claimed in Claims 76, 81 and 85, in which said producing step comprises: attaching a transducer to a person; and body-member actuating said transducer (column 7 lines 57 to 65; see Figure 4).

Referring to Claims 11-12, Allen et al. disclose the switch as claimed in Claim 9, in which said method further comprises differentiating said output signal a second time; and said performing step comprises performing said first switching function in response to said second differentiating step (column 4 lines 42 to 67; column 9 lines 23 to 45).

Referring to Claims 13-14, 32-33, 52, 63, 74, 92-94, Allen et al. disclose the switch as claimed in Claims 9, 31 and 50, in which said method further comprises: performing said first switching function when said output signal is increasing; performing a second switching function when said output signal is decreasing; and producing a logic output as a function of both of said switching functions (column 3 lines 57 to column 4 line 14; column 6 line 58 to column 7 line 5; see Figures 2-3).

Referring to Claim 35, Allen et al. disclose the method as claimed in Claim 31, in which said method further comprises activating control of audio output unit (16 or video output units) (i.e. any apparatus) in response to said output function (i.e. a switching function) (column 6 lines 31 to 50; column 9 line 59 to column 10 line 15).

Referring to Claims 90-91, Allen et al. disclose the method as claimed in Claims 31 and 89, in which said method further comprises controlling c control unit (10) (i.e. an apparatus) in response to said output signal of A/D (22) (column 4 lines 14 to 23; column 7 lines 57 to 65; see Figure 4).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 75 is rejected under 35 U.S.C. 103(a) as being unpatentable Allen et al. (US# 5,749,372) as applied to claim 63 above, and in view of Muller (US# 4,865,610).

Referring to Claim 75, Allen et al. disclose the switch as claimed in Claim 63, in which said method further comprises: performing said first switching function in response to a predetermined rate-of-change of said output signal produced by user actuation of said transducer in the other of said directions (column 3 lines 57 to column 4 line 14; column 6 line 58 to column 7 line 5; see Figures 2-3). However, Allen et al. did not explicitly disclose means for producing a third switching function.

In the same field of endeavor of devices for controlling apparatus, Muller et al. teach that output signals according to the X and Y directions (column 3 lines 55 to 68; column 6 lines 57 to column 7 line 3) in order to processed into the data necessary and suitable for the control of complex appliances.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to recognize the need for a method of generating plurality of output signals according to the X and Y direction to create unlimited number of signals taught by Muller in the method for monitoring activity and providing feedback to a user concerning activity level performance of Allen et al. because producing plurality of output signals according to the direction of movement would improve unlimited number of signals to processed into the data necessary and suitable for the control of complex apparatuses.

3. Claims 36-42, 47 and 76-80 is rejected under 35 U.S.C. 103(a) as being unpatentable Allen et al. (US# 5,749,372) in view of Elwell (US# 5,394,035).

Referring to Claim 76, Allen et al. disclose a method, to the extent as claimed with respect to claim 4 above, however, Allen et al. did not explicitly disclose providing a mode of operation in which a rate of change of the output signal is below a threshold rate of change; and performing said switching function in response to the rate-of-change of said output signal exceeding said threshold rate of change.

In an analogous art, Elwell discloses providing a mode of operation in which a rate of change of the output signal is below a threshold rate of change (column 4 line 67 to column 5 lines 18); and performing said switching function in response to the rate-of-change of said output signal exceeding said threshold rate of change (column 6 lines 44 to 56; column 7 lines 1 to 4) in order to detect an event to be monitored for controlling an equipment.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to recognize the need for a detection by a rate of change comparator responsive to the output of the transducer taught by Elwell in the method for monitoring activity and providing feedback to a user concerning activity level performance of Allen et al. because using a comparator for comparing a rate of change of a threshold value would change in the operation of the equipment to provide feedback more reliable.

Referring to Claim 37, Allen et al. in view of Elwell disclose the method as claimed in Claim 76, Allen et al. disclose in which said method further comprises controlling c control unit (10) (i.e. an apparatus) in response to said output signal of A/D (22) (column 4 lines 14 to 23; column 7 lines 57 to 65; see Figure 4).

Referring to Claims 77-78, Allen et al. in view of Elwell disclose the method as claimed in Claim 76, Allen et al. disclose in which said producing step comprises actuating an input (column 3 lines 57 to 66; column 7 lines 33 to 42; see Figures 4 and 5).

Referring to Claim 79, Allen et al. in view of Elwell disclose the method as claimed in Claim 76, Allen et al. disclose further comprising adjusting said threshold rate-of-change (column 7 lines 43 to 56).

Referring to Claim 80, Allen et al. in view of Elwell disclose the method as claimed in Claim 76, Allen et al. disclose in which said performing step comprises differentiating said output signal (column 4 lines 42 to 67; column 8 lines 12 to 29).

Referring to Claims 36, 38 and 40-41, Allen et al. in view of Elwell disclose the method as claimed in Claim 76, Allen et al. disclose in which said method further comprises activating control of audio output unit (16 or video output units) (i.e. any apparatus) in response to said output function (i.e. a switching function) (column 6 lines 31 to 50; column 9 line 59 to column 10 line 15).

Referring to Claim 39, Allen et al. in view of Elwell disclose the method as claimed in Claim 76, Allen et al. disclose in which said method further comprises:

If activity level reach or exceed intensity level, the generating an output beep (i.e. activating control of an apparatus in response to said switching function being performed inside a window of opportunity); and if activity level does not reach or exceed intensity level generating no feedback to the user (i.e. aborting said activating step in response to said switching function being performed outside said window of opportunity) (column 4 lines 37 to 67; see Figures 2 and 3).

Referring to Claim 42, Allen et al. in view of Elwell disclose the method as claimed in Claim 76, Allen et al. disclose in which said method further comprises: activating a selected one of a first or a second apparatus in response to performing said switching function during a window of opportunity; and proportionally controlling a function of said selected apparatus as a function of said output signal (column 4 lines 42 to 67; column 6 lines 22 to 30; column 9 lines 23 to 45).

Referring to Claim 47, Allen et al. in view of Elwell disclose the method as claimed in Claim 76, Allen et al. disclose in which said method further comprises initiating cascading a plurality of task opportunities; and said initiating step comprises performing said switching function (column 6 lines 31 to 66; column 8 line 60 to column 9 line 8; see Figures 2 and 3).

Claim Objections

Claims 17, 19, 43-46 and 48-49 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Referring to claim 17, the following is a statement of reasons for the indication of allowable subject matter: the prior art fail to suggest the limitations that refraining from said momentary-contact switching step during a second time delay that follows said window of opportunity; and initiating operation of a first electrical device subsequent to successful completion of the preceding steps.

Referring to claim 43-44, the following is a statement of reasons for the indication of allowable subject matter: the prior art fail to suggest the limitations that

activating a selected one of a first or a second apparatus in response to performing said switching function during a window of opportunity;

selecting a function of said selected apparatus to be controlled; and

said selecting step comprises performing other switching function.

Referring to claim 45-46, the following is a statement of reasons for the indication of allowable subject matter: the prior art fail to suggest the limitations that

initiating cascading a plurality of task opportunities;

selecting a task; and

said selecting step comprises performing said switching function.

Referring to claim 48-49, the following is a statement of reasons for the indication of allowable subject matter: the prior art fail to suggest the limitations that

initiating cascading a plurality of task opportunities; and

said initiating step comprises performing said switching function;

selecting a task; and

said selecting step comprises performing an other switching function.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nam V Nguyen whose telephone number is 571-272-3061. The examiner can normally be reached on Mon-Fri, 8:00AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Zimmerman can be reached on 571- 272-3059. The fax phone numbers for the organization where this application or proceeding is assigned are 571-273-8300 for regular communications.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/N. V. N./
Examiner, Art Unit 2612

/Brian A Zimmerman/
Supervisory Patent Examiner, Art Unit 2612